

REMARKS

Claims 1-23 are pending in the current application. The Examiner rejected claims 1-7, 10-13, 16-19, 22, and 23 under 35 U.S.C. § 103(a) based on Muller, U.S. Patent 6,271,925, ("Muller") in view of Elssner et al, DD 261422 ("Elssner"). Reexamination and consideration of all pending claims are respectfully requested.

Claim 1

The Office Action rejected claim 1 under 35 U.S.C. § 103(a) based on Muller in view of Elssner. Applicants respectfully traverse this rejection.

As described in the specification of the present application, the present system inspects both sides of a dual sided wafer or specimen:

...The wafer is mounted using a fixed three point mounting arrangement that holds the wafer at a relatively fixed position while simultaneously minimizing bending and stress. Light energy is transmitted through a lens arrangement employing lenses having diameter smaller than the specimen, such as half the size of the specimen, arranged to cause light energy to strike the surface of the wafer and subsequently pass through second collimating lens where detection and observation is performed.

The inventive system includes a variable coherence light source which transmits light energy through a collimator, which splits the light energy into two channels and directs said light energy to a diffraction grating. The diffraction grating splits each of the two beams into two separate first order beams, or a total of four first order beams. *Two of these first order beams are directed to the wafer surface, while the other two are directed toward flat reflective surfaces facing the wafer surfaces.* Another diffraction grating is positioned to receive the four first order beams and combine said beams into two separate channels, each of which are directed to a separate camera. Each camera is specially designed to receive the signal provided and resolve the image of the wafer surface.

Application, pp.7-8 (emphasis added).

Claim 1 states in its preamble that it is "[a] system for scanning both sides of a two sided specimen," and the system comprises, *inter alia*:

- (i) at least one reflective surface for receiving light energy from [a] diffraction grating;
- (ii) a second diffraction grating for receiving light reflected from said specimen and from each reflective surface.

Muller, in contrast, does not include any such reflective surface. Muller directs light energy toward both surfaces of a specimen, such as a semiconductor wafer, and collects the light reflected from both sides of the specimen. No reflective surface in Muller exists that receives light energy from a diffraction grating, and light is not received at a diffraction grating from the specimen and each reflective surface, as no such surfaces exist. The concept of employing such a reflective surface, limitation (i) of claim 1, is neither disclosed nor suggested by Muller.

The Office Action recognizes the absence of the reflective surface claimed from Muller, and finds the reflective surface in Elssner. Elssner discloses a dual hologram setup for inspecting a single surface of a specimen where:

[the] hologram (H1) is connected to the expansion system (AS1) which is used for transmitting light. The divergent beam path is conveyed in a parallel beam path and split into test and reference beam paths. A second identical hologram (H2) formed in the plane of the first hologram (H1) combines the reference beam reflected from a mirror (S1) with the specimen beam for the convergent observation beam.

Various differences between Elssner and the present claim exist. First, Elssner neither discloses nor suggests inspecting both sides of a specimen. Second, Elssner employs holograms, which materially differ from diffraction gratings. A hologram is typically more complex and more expensive than a diffraction grating. It is assumed that Elssner requires a hologram because of the angle at which light beams emanate from the hologram H1. As shown in Elssner, light approaches one side of the hologram, and the hologram redirects light generally at an angle perpendicular to the received light energy. It is believed that the angle required by Elssner precludes any use of a diffraction grating. Nevertheless, it is difficult to understand how the Elssner design could be employed to inspect both sides of a dual sided specimen as required by the language of the preamble. Further, from the illustration and English description of Elssner, it

is unclear what light components are directed toward specimen P as opposed to toward mirror S1. The split into “test” and “reference” beam paths does not indicate the information provided by the hologram. As required by the express language of claim 1, Elssner does not collimate light energy into two separate channels, nor does it apparently receive light energy transmitted from each channel and pass nonzero order light energy toward the specimen.

Most notably, there appears to be no motivation to combine the Muller interferometer with the Elssner system. As noted above, Muller neither discloses nor suggests a reflective surface as claimed. Elssner does not disclose or suggest inspecting both sides of a dual sided specimen, collimating light into two separate channels, receiving light energy transmitted from each channel and passing nonzero order light energy toward the specimen, or using diffraction gratings as presently claimed.

The Office Action states the conclusion that “[t]he use of the reference surface allows for better quality of measurements due to the use of combining a first order diffraction with another first order diffraction rather than combining a first order diffraction with a zero order diffraction where intensities of the two orders can be different.” Office Action, pp. 2-3. As previously noted, it is unclear from the references themselves how they could be combined to form the design currently claimed by Applicants. Aspects of the Muller design, such as inspection of both sides of the specimen, could not readily be employed in Elssner. Further, use of the hologram may add complexity and cost to the Muller design, and it is unclear whether the holograms of Elssner could operate in any manner in the Muller design, let alone to obtain the benefits of the current invention.

In short, Applicants contend that the Office Action is concluding that a combination of Muller and Elssner could operate in the manner claimed by Applicants, without any suggestion or discussion of such a combination in the references themselves. The statement in the Office Action does not demonstrate any motivation to combine the references explicit or implied within the references themselves, but instead recites a desired result, namely the functionality of the system for inspecting both sides of a two sided specimen using two channels of reflected light components as claimed by the Applicants. Applicants contend that no motivation to employ the

Muller design is included in Elssner, and certainly no motivation to employ the design of Elssner is included in Muller.

The Federal Circuit has held that obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination. *ACS Hospital System, Inc. v. Montefiore Hospital*, 732 F.2d 1572 (Fed. Cir. 1984). Without some showing in the prior art that suggests in some way a combination in order to arrive at the claimed invention, it is impermissible to use the Applicant's teaching to search references for the claimed elements and combine them as claimed. *In Re Vaeck*, 947 F.2d 488 (Fed. Cir. 1991); *In Re Laskowski*, 871 F.2d 115, 117 (Fed. Cir. 1989); *see also, Ex Parte Lange*, 72 U.S.P.Q. 90, 91 (C.C.P.A. 1947) ("It seems to us that the Examiner is using appellant's disclosure for the suggestion of the combination since there is no suggestion in any of the patents for their combination in the manner claimed by Applicant."); *In re Leonor*, 158 U.S.P.Q. 20, 21 (C.C.P.A. 1968) (the issue is "whether teachings of prior art would, of themselves, and without benefit of applicant's disclosure, suggest [a process] which would make claimed invention obvious...") (emphasis in original). As noted, the Elssner reference does not suggest combining the holograms and mirror disclosed with the dual sided interferometer inspection design of Muller to produce the unique system claimed in Applicants' independent claim 1.

Applicants respectfully submit that the Examiner has used hindsight in rejecting the claims herein. It is only through hindsight, after seeing Applicants' disclosure, that it would be considered possible to create the hearing aid design as claimed by the Applicants.

With regard to the use of hindsight, or the use of an Applicant's teaching to combine references, the courts have overwhelmingly condemned such combinations and have upheld the validity of patents or claims of patents in which such hindsight was employed to combine the references. *W.L. Gore Associates, Inc. v. Garlock, Inc.*, 220 U.S.P.Q. 303, 313 (Fed. Cir. 1983), (condemning the "insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher"); *In re Fine*, 837 F.2d 1044, 1051 (Fed. Cir. 1988) ("One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior

art to deprecate the claimed invention.”) Applicant respectfully submits that combination of aspects of the Muller reference with the Elssner design is merely a hindsight reconstruction of the invention using Applicants’ disclosure and claims as a guide. Such hindsight reconstruction of the claimed system is inappropriate and thus rejection of independent claim 1 for this reason is improper.

Based on the foregoing, Applicants respectfully submit that claim 1 is allowable over the references of record, and that all claims dependent from claim 1 are allowable as they depend from an allowable base claim.

Claim 11

Claim 11 recites the following limitations:

- (i) diffracting [] light energy into nonzero order light energy;
- (ii) directing said diffracted light energy toward said specimen and toward a reflective surface mounted substantially parallel to said specimen;
- (iii) receiving nonzero order light energy reflected from said specimen and said reflective surface and combining the received light energy

As discussed above, Muller does not disclose nor suggest limitation (ii) above, particularly directing diffracted light energy toward a reflective surface. Elssner apparently does not disclose diffracting light energy into nonzero order light energy, nor directing diffracted light energy toward any element, nor receiving nonzero order light energy as claimed. Further, the preamble requirement of “inspecting both sides of a dual sided specimen simultaneously” is missing from Elssner. As noted above with respect to claim 1, there is no motivation to combine the references as suggested, and Applicants submit that it is only through use of impermissible hindsight, using Applicants’ disclosure and claims as a guide, that the invention of claim 11 may be reconstructed. Based on the foregoing, Applicants respectfully submit that claim 11 is also allowable over the references of record, and that all claims dependent from claim 11 are allowable as they depend from an allowable base claim.

Claim 17

Claim 17 recites the following limitations:

- (i) a light energy splitting device for isolating nonzero order components of light energy received from said energy transmitting device; and
- (ii) at least one reflecting surface mounted substantially parallel to said specimen and receiving nonzero order energy from said light energy splitting device;
- (iii) wherein said light energy splitting device directs nonzero energy simultaneously toward one reflecting surface and one surface of said two sided specimen

As discussed above, Muller does not disclose nor suggest limitation (ii) above, particularly the at least one reflective surface. Elssner apparently does not disclose isolating nonzero order components of light energy, nor receiving nonzero order light energy as claimed. Further, the preamble requirement of “inspecting both sides of a two sided specimen” is missing from Elssner. As noted above, there is no motivation to combine the references as suggested, and Applicants submit that it is only through use of impermissible hindsight, using Applicants’ disclosure and claims as a guide, that the invention of claim 17 may be reconstructed. Based on the foregoing, Applicants respectfully submit that claim 17 is also allowable over the references of record, and that all claims dependent from claim 17 are allowable as they depend from an allowable base claim.

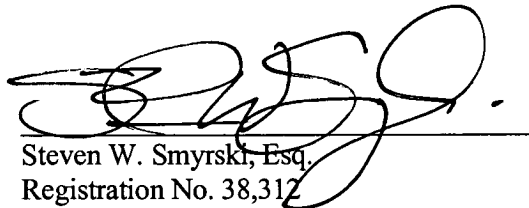
Accordingly, it is respectfully submitted that all claims fully comply with 35 U.S.C. §103.

CONCLUSION

In view of the foregoing, it is respectfully submitted that all claims of the present application are in condition for allowance. Reexamination and reconsideration of all of the claims, as amended, are respectfully requested and allowance of all the claims at an early date is solicited.

Applicants believe that no fees are due in accordance with this Response beyond those included herewith. Should any fees be due, the Commissioner is hereby authorized to charge any deficiencies or credit any overpayment to Deposit Account 502026.

Respectfully submitted,


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